

**USDA P Briefing for EPA
September 2, 2009**

Briefing/Talking Points

Nutrient Imbalances in the Chesapeake Bay Watershed

- **USDA report:** shows that the south-central Pennsylvania, Shenandoah Valley, and Delmarva Peninsula are in the category with the highest P imbalances nationally in 1997. These excesses have increased since 1982 by over 300,000 lbs/county. Reference: USDA Manure Nutrients Relative to the Capacity of Cropland and Pastureland to Assimilate Nutrients: Spatial and Temporal Trends for the United States, Kellogg, Lander, Moffitt, and Gollehon, December 2000.
- USDA CSREES MAWP Nutrient Budget Analysis – Regions with significant P imbalances – 2007
- Delaware nutrient mass balance study 1996-2006: Shows nutrient imbalances have existed in DE for many years and continue today, particularly in Sussex County. However, it appears that there are some gradual reductions of nutrient surpluses resulting from NMP implementation, loss of ag operations, and manure transport program.

Note: A similar study will be conducted in MD starting this year.

Cause of Nutrient Imbalances

- Concentrated animal operations and insufficient land result in P application rates that are much higher than what the crop needs and can uptake.

High manure nutrient loading regions are in areas with most concentrated animal operations Lancaster, Shenandoah, and Eastern Shore (CBF manure nitrogen map as a visual example).

- Two decades of research show that P detaches from sediment and can move to surface and groundwaters at P saturation levels greater than 20%.
- Problems with P-site index – not protective of WQ, can result in P saturation
 - Russ Brinsfield, UMD, AgroEcology Center has come out publicly saying that the MD P-site Index is not protective of water quality and is resulting in P saturated soils.
 - We've heard similar concerns through other internal discussions.
 - SERA-17 Folks say in their position papers that:
 - “the implementation of P-Index based management only addresses short-term P loss issues. For long-term sustainability, applications of P must approach a balance with crop removal.”

- "In areas of intensive animal production, the long term goal must be to match manure P production with local crop P requirements or to find alternative uses for the manure outside the farm boundary." In areas with intensive animal production, the P index will move manure from sites with high P loss risks to lower P loss risks. This approach is unsustainable in the long term because it can result in P build up in these soils to unacceptable levels across the farm.

Proposed Solutions for Phosphorus

- Our main interest is to ensure that nutrient application guidelines/tools are protective of water quality.
- Eventual goal is to limit P applications to no more than what can be removed by the crop (based on P soil test). Shorter term goal would be to allow some level of P build up in soil, but not to exceed 20%. Two decades of research show that P detaches from sediment and can move to surface and groundwaters at P saturation levels greater than 20%.
- Implications of pursuing a P-saturation approach.
 - Eventual reduction of P loads to Bay, prevent additional farms from becoming saturated. Protects farms and keeps them viable over long-haul.
 - Excess manure nutrients. Need solutions for excess manure nutrients (use E.O. to drive/create markets, integrator role in helping with solution?, USDA, EPA, states role in providing TA and FA to producers to help with solution, etc.).
 - P legacy issue in soils that are already saturated – will take time for P levels to decline even after application ceases.
- Implications of delaying solutions.
 - P index is harming farmers for the future by allowing P to build up in soils.
 - Problem will be more costly to fix and take longer to see results the more saturated the soils are.

Opportunities for Coordination with USDA

- Revising NRCS 590 Nutrient Management Standard.
 - Can we revise state standards (590 standard) to ensure that P application methods are protective of water quality. For example, based P application on P soil tests particularly in those regions that are already out of balance or have high concentration of animal operations and are likely to get out of balance.
- Provide financial and technical assistance to move towards P application practices that are more protective of water quality (Example: promote the advanced tiers of state 590 standards).
- Provide financial and technical assistance for alternative uses of manure nutrients (Example: NRCS Alternative Use Pilot Program).
- Building markets for manure nutrients (example: federal gov't require manure products on gov't land).

No-Till Issue May Come Up

- We've been promoting manure incorporation/injection on no-till lands to reduce the soluble P loadings to the Bay to further reduce P loadings that we get from no-till lands. USDA and some of our state partners are worried that we are promoting eliminating no-till or at least eliminating manure application on no-till lands. It's also an issue of equipment needed to incorporate manure, how it affects current no-till standard, and the time to make this type of change.
- Response:
 - We agree that no-till provides huge benefits for sediment and P reductions.
 - Because we've found that no-till systems can result in increases in soluble P, we want to take steps to get those reductions down. We need to look for every opportunity to get further reductions and we think we can refine the no-till system to further reduce P through manure injection.
 - We want to push for manure injection in no-till systems and work with state and NRCS to see how we can build that into an acceptable practice standard for no-till.
 - There are liquid manure injectors already in use now. EPA, through our innovative grants program (administered by NFWF) is funding poultry litter/dairy compost injector technology throughout the watershed which is promising. ARS, along with key land grant universities are involved in this effort.